AppCOE
Application **C**ommon **O**perating **E**nvironment

Release 1.8.1 – Quick Installation Guide
for Windows and Linux Host Platforms

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Chapter 1. About this Guide

This chapter contains the following topics:

1.1 Objectives

This manual describes about installing AppCOE IDE. AppCOE provides a multiple OS interface host environment with provisions to generate optimized code for a wide variety of target OS platforms.

1.2 Audience

This manual is designed for anyone who wants to port applications to different operating systems, create projects, and run applications. This manual is intended for the following audiences:

- Customers with technical knowledge and experience with the Embedded Systems
- Application developers who want to migrate their application to different RTOSs

Managers who want to minimize the cost and leverage on their existing code

1.3 Requesting Support

Technical support is available through the MapuSoft Technologies Support Centre. If you are a customer with an active MapuSoft support contract, or covered under warranty, and need post sales technical support, you can access our tools and resources online or open a conversation/ticket at http://www.mapusoft.com/support.

Anyone can initially contact sales/admin/tech via the above mechanism however tech support is offered to only registered users or evaluation customers.

1.3.1 Registering a New Account

If you are a customer with valid tech support contract or a trial user, please request an account be created by providing your email address, company address, telephone number etc. by contacting sales@mapusoft.com. You will be provided via account name (your email) and also password to sign-in

1.3.2 Submitting a Ticket

1. To submit a ticket, simple sign-in into your account http://www.mapusoft.com/support and open a conversation.

2. To submit a ticket from AppCOE IDE

From AppCOE main menu, Select Help > Create a Support Ticket as shown in below Figure.

Figure-1: Create a Support Ticket from AppCOE
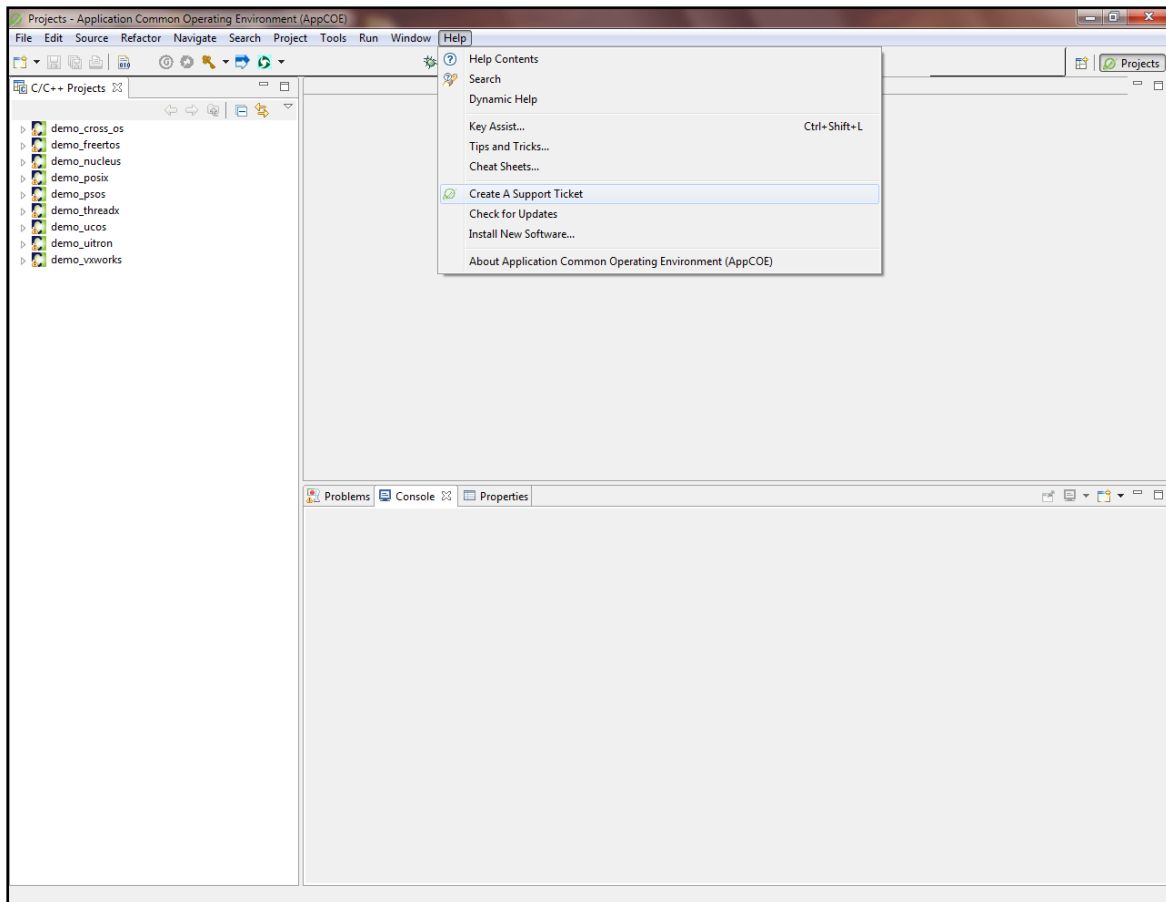
To submit a ticket, simple sign-in into your account http://www.mapusoft.com/support and open a conversation.

MapuSoft Support personnel will get back to you within 48 hours with a valid response.

1.3.3 Live Support

Chat: MapuSoft Technologies also provides technical support through Live Chat from www.mapusoft.com website. If Chat is offline, please leave a detailed message including your email address, telephone number and company name so that MapuSoft personnel's can quickly respond to either responding to your chat by calling you on the number that you have provided

Telephone: You can also reach us at our toll-free number: **1-877-627-8763** and press the tech support option to contact MapuSoft tech support team for any urgent assistance.

1.4 Documentation Feedback

We greatly appreciate your feedback. Simple sign-in or just start a conversation and let us know **via:** http://www.mapusoft.com/support/

Chapter 2. Installation of AppCOE

This chapter contains the following topics:

2.1 Where do I download AppCOE?

You can request a free demo or trial version from MapuSoft's website link below:

www.mapusoft.com/downloads/

If you have requested the 'free demo', then download links along with install instructions will be emailed to you (demo version will only allow you to run the pre-built demo application).

If you would like to re-build the demo applications and/or develop your own application, and actually try out the product, request for a free trial version by contacting MapuSoft sales.

If you have already requested for the 'free trial', then MapuSoft sales will contact you to obtain a MAC address in order to provide you an evaluation license key and the download links. During evaluation, you are entitled for free tech support for this, MapuSoft sales will also create you a tech support account and will provide you with the login information. MapuSoft support can be contacted : www.mapusoft.com/support

You can run AppCOE 1.8.1 on all of the following configurations on both windows and Linux host platform:

- 64 bit hardware and 32 bit OS
- 64 bit hardware and 64 bit OS
- 32 bit hardware and 32 bit OS

For Ada-C/C++ Changer™ Product, download 32 bit AppCOE,

- **app-coe-windows.exe** for windows machine
- **app-coe-linux.tar.gz** for linux distributions
-

(Note: When using Google Chrome on Linux the file may be downloaded as **app-coe-linux.gz,** if this happens refer to the second procedure of `section 2.7.1` while installing AppCOE)

For OS Changer® Porting Kit, Cross-OS Development Platform™, Cross-OS Hypervisor™, Linux OK™, OS Simulator™, App/Platform Profiler™, OS Version UpKit™ products, download either 32bit AppCOE or 64bit AppCOE,

- **app-coe-linux.tar.gz** for 32 bit/64 bit linux OS/Environment
- **app-coe-linux_x64.tar.gz** for 64 bit linux OS/Environment
- **app-coe-windows.exe** for 32 bit/64 bit Windows OS/Environment
- **app-coe-windows_x64.exe** for 64 bit Windows OS/Environment

(Note: When using Google Chrome on Linux the file may be downloaded as **app-coe-linux.gz,** if this happens refer to the second procedure of `section 2.7.1` while installing AppCOE)

2.2 Host System Requirements

No	Supported Host Platforms	System Requirements
1	Windows 10,8, 7, XP, Vista	Minimum 2 GB RAM
2	Linux 2.6 or Later	Minimum 1 GB RAM

2.3 AppCOE HOST Platform Validation

AppCOE 1.8.1 is validated in the following Windows HOST environment.

Machine	Architecture	Validated	Remarks
Windows XP	(x64/x32)	Yes	
Windows 7	(x64/x32)	Yes	
Windows 8	(x64/x32)	Yes	
Windows 10	(x64/x32)	Yes	

AppCOE 1.8.1 is validated in the following Linux HOST environment.

Machine	Architecture	Validated	Remarks
Ubuntu 14.04	x86_x64	Yes	Validated on GNOME environment with both "root" and "user" mode.
Ubuntu16.04	x86_x64	Yes	Validated on GNOME environment with both "root" and "user" mode.
Centos 7	x86_x64	Yes	Validated on GNOME-classic environment with both "root" and "user" mode.
OpenSUSE Enterprise Server 11	x86_x64	Yes	Validated on GNOME environment with both "root" and "user" mode.
OpenSUSE 13.2	X86_64	Yes	Validated on GNOME environment with both "root" and "user" mode.

Note: When you install AppCOE in Linux host in user account (without root privilege), then you can install AppCOE in user directory like /home/mapusoft/AppCOE_x32. But in other system file system like /usr/Local, you may need root privilege and/or other special permissions for installation. Please check with your system administrator or Mapusoft with log files for solution. The following figure (Figure 2.1) shows the exception that could be faced without the root permission.

Figure-2.1: Permission Error
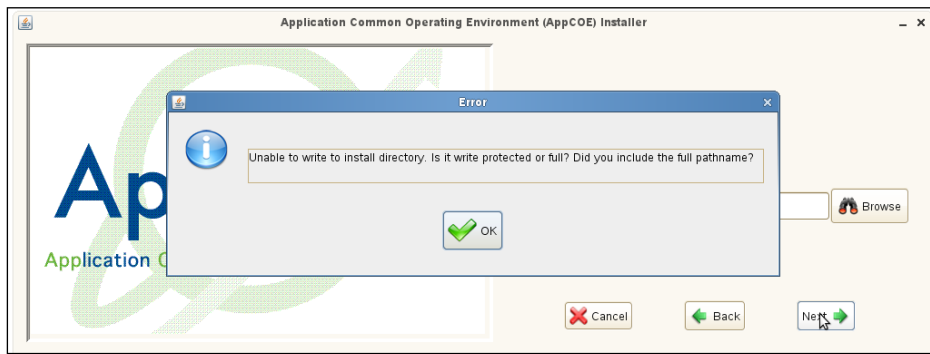
2.4 JRE Installation for Microsoft Windows (or) Linux

AppCOE is an eclipse-based IDE requires Java Run Time Environment (JRE). The installer actually is packaged with required JRE to install AppCOE. In some cases, like Virtual Environments, you may face some issues during the installation. So, make sure you install the right JRE for AppCOE installation.

To Install JRE on Microsoft Windows or Linux, Refer this below link:

http://docs.oracle.com/javase/7/docs/webnotes/install/windows/jre-installation-windows.html#Run

http://docs.oracle.com/javase/7/docs/webnotes/install/linux/linux-jre.html

2.4.1 Caution ⚠

- Make sure you have installed the Java Runtime Environment (JRE) **1.8** or later.

- If you are installing AppCOE 32-bit package (app-coe-windows) on a 64-bit environment, please make sure, you have installed 32-bit java (JRE) and required Java PATH variable and/or correct JRE is enabled (Refer **Figure 3**).

- If you have installed both 32-bit & 64-bit Java (JRE), you should make sure 32-bit java as Default version for you to install 32-bit AppCOE on 64-bit OS/Environments. And also make sure that 64-bit java is enabled in case of installing 64-bit AppCOE in 64 bit OS/Environments.

- To install Ada-C/C++ Changer™ product on a 64-bit environment, please make sure, you have installed 32-bit java (JRE) and required Java PATH variable and/or correct JRE is enabled in Java Control Panel as given below.

- In Windows/Linux machine, make sure that you have preinstalled java in case of the requirement of uninstalling AppCOE.

2.5 Known Installer Issue

- After installing **app-coe-windows.exe or app-coe-windows_x64.exe ,app-coe-linux.tar.gz or app-coe-linux_x64.tar.gz** installer, getting the error: "Invalid constructors for Environment Variable" error log

2.6 Enable the Installed JRE for Microsoft Windows (or) Linux

If you have Installed JRE in Microsoft Windows, by default JRE should be enabled in Java Control Panel, if you want to change or update JRE, you should follow the below steps:

2.6.1 For Microsoft Windows,

- Drag the Mouse pointer to the bottom-right corner of the screen, and then click on the **Search** icon. Or Click on the **Start** button and then click on the **Control Panel** option.
- In the **Control Panel Search** enter **Java Control Panel**.
- Click on the Java icon to open the **Java Control Panel.**
- Go to **Java** Tab and Click on **View** Option from Java Control Panel Window
- Checked **Enabled** option to which Java version you want to make default

2.6.2 For Linux,

- Click on **System button > Preferences > Java**
- Click on the Java icon to open the **Java Control Panel.**
- Go to **Java** Tab and Click on **View** Option from Java Control Panel Window
- Checked **Enabled** option to which Java version you want to make default

Figure-3: Enable the Installed JRE for Microsoft Windows (or) Linux
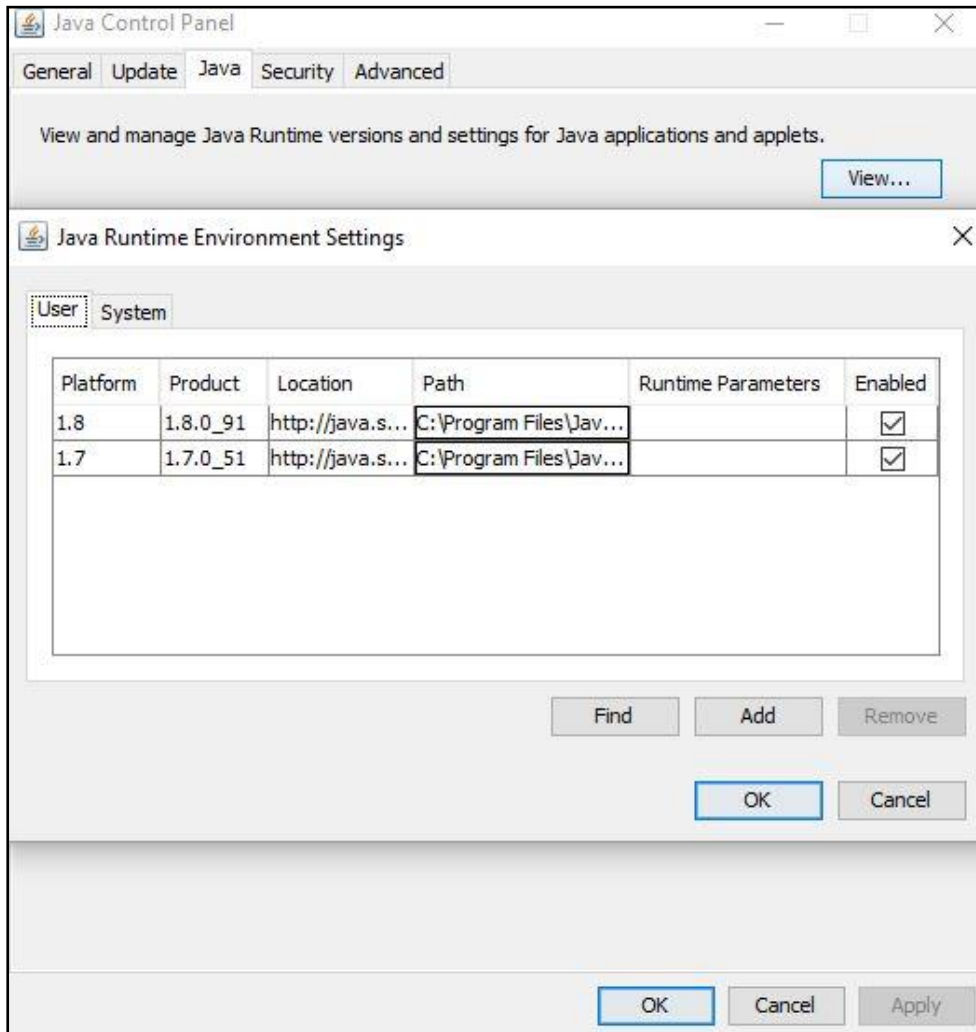
2.7 Installing AppCOE on Linux Host Platform

1. In Section-2.1 downloaded product file should be like that **"**app-coe-linux.tar.gz**"** /**"**app-coe-linux_x64.tar.gz**",** then extract the downloaded file using the following command:

   - **For i386, i686 bit:** "tar –xzvf app-coe-linux.tar.gz"
   - **For x86_64 bit:** "tar –xzvf app-coe-linux_x64.tar.gz"

   You will get install.sh & AppCOE_Linux_32.bin / AppCOE_Linux_64.bin**.**

   If the downloaded file is "app-coe-linux.gz" or "app-coe-linux_x64.**gz**", then extract using the following commands:

   - **For i386, i686 bit:** "tar –xzvf app-coe-linux.gz"
   - **For x86_64 bit:** "tar –xzvf app-coe-linux_x64.gz"

   You will get "app-coe-linux.**tar.gz**" or "app-coe-linux_x64.**tar.gz**"**,** then extract using "tar –xzvf app-coe-linux.tar.gz / app-coe-linux_x64.tar.gz"

   You will get install.sh & AppCOE_Linux_32.bin / AppCOE_Linux_64.bin**.**

2. It is recommended that the login user should have both 'root' or 'su' privileges while installing AppCOE by using install.sh script file and also allow AppCOE to utilize the

real-time features and install any kind of dependencies required for AppCOE and provide a true tasking priority that may be needed to run an embedded application.

For more permission related issues, contact your System Administrator or MapuSoft for better solutions.

3. Execute the following command to give the extracted files READ/WRITE/EXECUTE permissions:
   - **"chmod 777 –R * ."**

4. Run the install.sh script file through Linux terminal from same extracted directory, It will check for dependency needed for installing AppCOE.

5. The missing dependencies/packages can be installed using the following commands depending on different Linux distributions,

   Debian Distributions (Ubuntu): `apt-get install <package> -y`

   Redhat Distributions (Redhat, Centos & Fedora): `yum install <package> –y`

   OpenSuse Distributions: `zypper install <package> -y`

   (For eg: Debian Distributions: `apt-get install libc-dev -y –y`)

6. Install the missing dependencies/packages and run the install.sh script file again.

7. Once AppCOE get successfully installed using script file, then run the **AppCOE** from AppCOE `<InstallDir>` through Linux Terminal (or) Linux Desktop icon to launch the AppCOE application.

8. Choose AppCOE default workspace path "AppCOE `<InstallDir>/workspace`" and run the pre-build canned Demo applications

   For Installing license key please refer the `section 2.9`. After installed license key, you will be able to create a new AppCOE C/C++ application project, port your own applications and also be able to build the applications

Notes:

1. In Linux ,If you installed AppCOE in non User account without 'root' or 'su' privileges , you will get the message like below,

```
[mapusoft@localhost installers]$ ./install.sh
 Your Current OS: CentOS
 Current OS Version: 7.1
 Now  you  are  logged  under  (Non-root  User  account):  mapusoft,  it's
recommended to login user should have either „root" or „su" privilege while
installing the missing dependency package required for AppCOE
```

2. Do not provide special characters to the AppCOE`<InstallDir>` as you will get java run-time errors

3. If you experience any gdb related errors try upgrading the old gdb package

4. While compiling any AppCOE C/C++ project, if you face error like "`/usr/bin/ld: cannot find crt1.o: No such file or directory, collect2: ld returned 1 exit status`", then try installing the below mentioned packages for your own respective distributions.
    a. Debian Distributions: `aptitude show libc-dev -y`
    b. Ubuntu Distributions: `apt-get install libc-dev -y`
    c. Redhat Distributions: `yum install glibc-devel -y`

5. If you face any other dependencies issues, other than mentioned in install.sh script file for any Fedora Distribution, then try installing this package: `adawaita-gtk2-theme.i686`

6. Fixing compilation error "recompile with -fPIC" on AppCOE project:
Note: Please upgrade to newer version of GCC to skip this error otherwise fix it in the AppCOE project as stated below.

If building an AppCOE project results in the compilation error "recompile with -fPIC" on an older GCC version of an Ubuntu distribution as stated below then please do the following steps.

If the GCC version is less than 6 for Ubuntu distribution, then the -fPIC -no-pie command line options need to be added in the GCC compiler and linker sections of the project. For other Linux distributions these options are not needed.
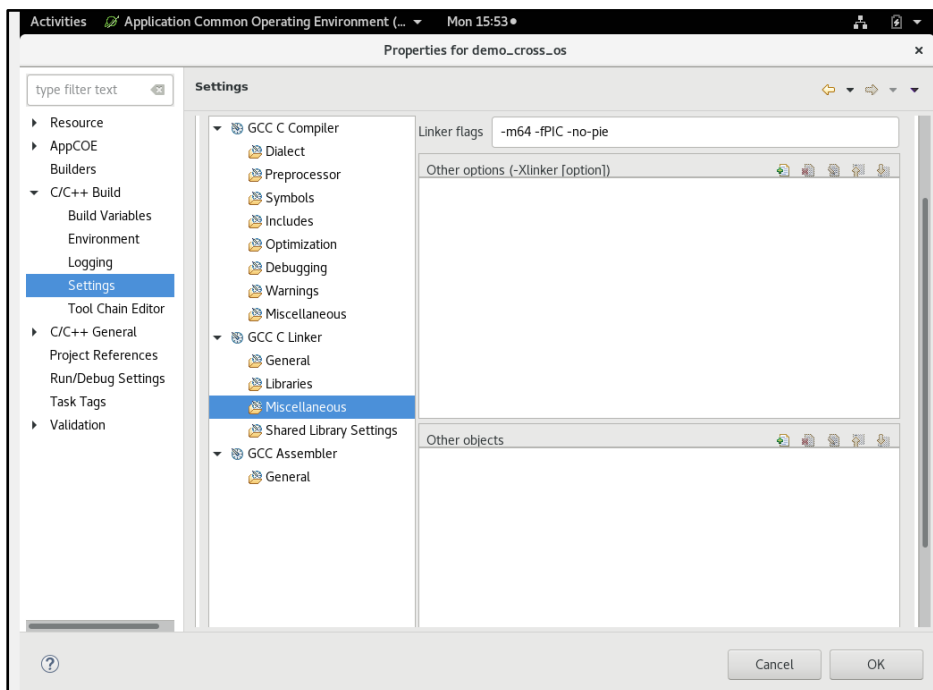
    a. Select any AppCOE project.
    b. Right click on the project and select properties.
    c. Go to C/C++ Build -> Settings.
    d. Go to GCC C compiler -> Miscellaneous -> Other Flags and update with -fPIC -no-pie.

Figure-4: GCC C compiler Flags
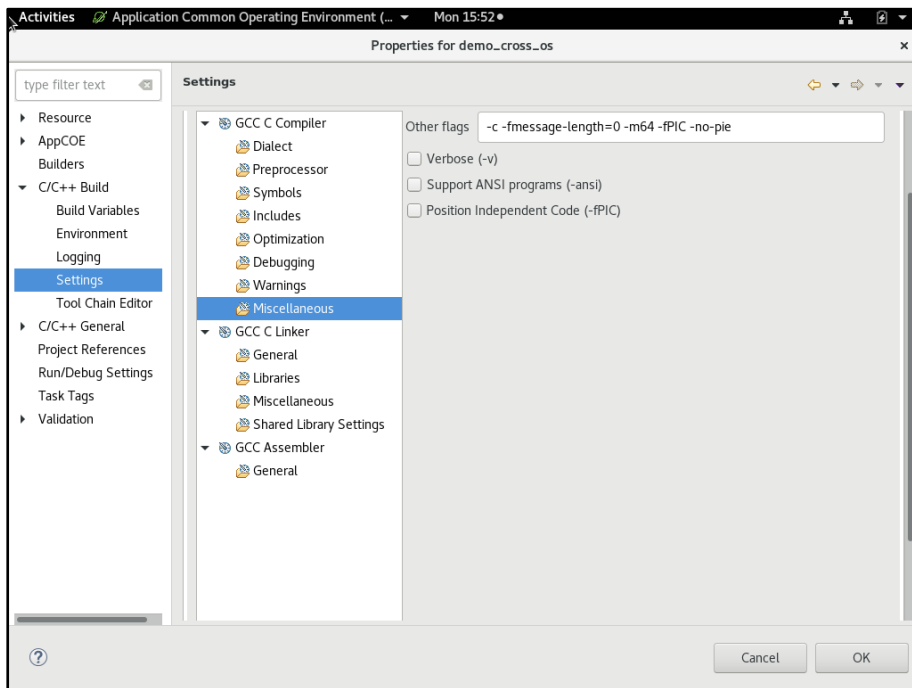
e. Go to GCC C Linker -> Miscellaneous -> Linker flags and update with -fPIC -no-pie

Figure-5: GCC C Linker Flags

2.8 Installing AppCOE on Windows Host Platform

1. Installer will ask for a directory to install AppCOE release. Browse to the directory or provide a directory name when prompted

2. Once installed, reboot the computer. AppCOE will not run properly without re-boot

3. Run AppCOE.exe with admin privilege so as to get flawless running of your projects. To run with admin privilege, follow the below steps,

   Right click on **AppCOE.exe** and select **Properties**->**Compatibility**-> Select **Run this program as an administrator** and click **Apply** and **OK**

   (**Note**: if you don't run AppCOE as an administrator, real time task scheduling and task priority functionalities may not work.)

4. Now, run the **AppCOE.exe** in AppCOE <InstallDir > or launch the AppCOE application from the windows desktop icon

5. Install the license key if you are provided with one (see **section 2.9** on how to install the license key). In this case, you will be able to re-build the demo applications or be able to create or port your own applications

Note:

1. On Windows, AppCOE installer displays "unpacking the installer" in the start. The time for display of this message usually depends on your system RAM. If your RAM is less than 1GB, it takes a while to show up this message.

2. Do not provide special characters to the AppCOE<installdir> as you will get java run-time errors.

3. If you experience the error [gdb: unknown target exception 0xc0000135 at 0x7c9666c6], then more likely the environmental PATH variable is set to pull the incorrect path settings for mingw/bin and msys/bin. Please ensure that the PATH is set correctly to the following:

   `<INSTALDIR>mingw`

   `<INSTALDIR>mingw/bin`

   `<INSTALDIR>msys/1.0/bin`

   Or try upgrading the old mingw and msys.

2.9 Installing license key

- Copy the license key onto any Directory in your local drive

- Launch AppCOE application**.** Select the icon that looks like a key on the icon menu and choose "**install license**". Browse to the path where the license key located and then AppCOE will process the key and will keep a copy of the license file inside the AppCOE <installdir/license> folder

Note: From the release 1.8.1 license features have been changed. So, the old license key may not work with the new release. Contact MapuSoft for further queries.

2.10 Annexure

By installing "'`app-coe-linux.tar.gz`" into different x86_64 Linux distribution, the following package dependency was shown after running the install.sh in various Linux distribution,

Here you can see the following AppCOE installer Validation sample report for various Linux distributions.

Centos 7 x86_64 Distribution:

```
[root@localhost latest]# ./install.sh
 Your Current OS :CentOS
 Current OS Version  :7.1
 You are logged under:root
 You can be installed the missing depedencies using the following commands
depending on specific linux distributions
 Debain Distributions(Ubuntu):                apt-get install <package> -y
 Redhat Distributions(Redhat,Centos&Fedora):   yum install <package> -y
 OpenSUSE Distributions:                zypper install <package> -y
 Checking for installer dependencies
 java found
 Installed Version 1.8.0_101
 glibc.i686 found
 libgcc.i686 found
 zlib.i686 found
 libXt.i686 found
 libXext.i686 found
 libXtst.i686 found
 freetype.i686 found
 gtk2 found
 alsa-lib.i686 found
 dbus-glib found
 libcanberra-gtk2.i686 found
 adwaita-gtk2-theme.i686 found
 PackageKit-gtk3-module.i686 found
 Java Dependency check passed.  Launching the installer...
 Installer Dependency check passed.  Launching the installer...
  inflating: jex.control
 extracting: install.jar
  inflating: installer.bin
  inflating: jrelnx.bin
  inflating: META-INF/MANIFEST.MF
Unpacking the installer...
Searching for the JVM...
Starting the installer...
************Installer Validation*****************

 Checking for AppCOE dependencies
 glibc-devel.i686 found
 gdb found
 gcc found
 gcc-c++ found
 make found
  AppCOE Dependency check passed..
```

Ubuntu 14.04 x86_64 Distribution :

```
root@mapusoft:/home/latest_x32linux# ./install.sh
 Your Current OS :Ubuntu
 Current OS Version  :14.04
 You are logged under:root
 You can be installed the missing depedencies using the following commands
depending on specific linux distributions
 Debain Distributions(Ubuntu):              apt-get install <package> -y
 Redhat Distributions(Redhat,Centos&Fedora):   yum install <package> -y
 OpenSUSE Distributions:              zypper install <package> -y
 Checking for installer dependencies
 java found
 Installed Version 1.8.0_121
 lib32z1 found
 lib32ncurses5 found
 lib32bz2-1.0 found
 libc6-dev found
 libc6 found
 zlib1g found
 libxt6 found
 libxext6 found
 libxtst6 found
 libfreetype6 found
 libgtk2.0-0 found
 libdbus-glib-1-2 found
 libcanberra-gtk0 found
 gtk2-engines found
 libcanberra-gtk-module:i386 found
 gtk2-engines-murrine:i386 found
 unity-gtk2-module:i386 found
 libatk-adaptor:i386 found
 libgail-common:i386 found
 libxtst6:i386 found
 dconf-tools found
 libdconf1:i386 found
 Java Dependency check passed.  Launching the installer...
 Installer Dependency check passed.  Launching the installer...
  inflating: jex.control
 extracting: install.jar
  inflating: installer.bin
  inflating: jrelnx.bin
  inflating: META-INF/MANIFEST.MF
Unpacking the installer...
Searching for the JVM...
Starting the installer...
*************Installer Validation******************
 Checking for AppCOE dependencies
 gcc found
 g++ found
 gdb found
 make found
 g++-multilib found
  AppCOE Dependency check passed..
root@mapusoft:/home/latest_x32linux#
```

Open SUSE 11.1 x86_64 Distribution:

```
linux:~/Desktop/latest # ./install.sh
 You are logged under:root
 You can be installed the missing depedencies using the following commands
depending on specific linux distributions
 Debain Distributions(Ubuntu):                apt-get install <package> -y
 Redhat Distributions(Redhat,Centos&Fedora):    yum install <package> -y
 OpenSUSE Distributions:                zypper install <package> -y
 Checking for installer dependencies
 java found
 Installed Version 1.8.0_111
 glibc-32bit found
 libgcc-32bit found
 zlib-32bit found
 libXt-32bit found
 libXext-32bit found
 libXtst-32bit found
 freetype-32bit found
 gtk2 found
 alsa found
 libdbus-glib found
 libcanberra-gtk2-32bit found
 gtk2-engines-32bit found
 PackageKit-gtk-module-32bit found
 Java Dependency check passed.  Launching the installer...
 Installer Dependency check passed.  Launching the installer...
*************Installer Validation******************

 Checking for AppCOE dependencies
 glibc-devel-32bit found
 gdb found
 gcc-32bit found
 gcc-c++ found
 make found
  AppCOE Dependency check passed...
```

2.11 Document Reference

The documents are all available in the following documentation folder:

AppCOE <installdir>/plugins/mapusoft.appcoe.doc_1.5.0/enc_pdfs

Note: Some of the documentation will be encrypted and will get decrypted when license key gets installed.

They are also available on MapuSoft website from links below.

➢ http://www.mapusoft.com/wp-content/uploads/documents/Release_Notes.pdf

Once the license key is installed, additional documentation like reference manuals and such will also become accessible in the above documentation folder.

Note: The above documents are also available within AppCOE application in the menu bar under "Help->Help_contents->Application_Common_Operating_Environment". If you are not able to view the documents properly or if the AppCOE application hangs while viewing help documents, please upgrade your Internet Explorer (or use another browser) and set the Adobe Reader as your default pdf reader.